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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,250	03/14/2001	Osamu Ueno	108910	1313

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EXAMINER

DINH, TUAN T

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/805,250

**Applicant(s)**

UENO ET AL.

**Examiner**

Tuan T Dinh

**Art Unit**

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 2,3 and 10-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-8 and 15-19 is/are rejected.
- 7) ☐ Claim(s) 9 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 29 November 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4, 15-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 4, line 1-3, and claim 15, lines 1-2, it is unclear. The phrase of "...a power supply region and a ground region that are adjacent and are formed in a same layer" is not understood. In specification, page 19, lines 23-24, and page 20, line 1-3, applicant describes the power supply and ground regions are disposed in opposite to each other, and a dielectric (not shown) is provided between them. How can two separate layers (power and ground layers) (on opposite or parallel) being formed in the same layer?

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Lockwood et al. (U. S. Patent 5,898,576).

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As best understood to claim 15, Lockwood discloses a circuit board device (30-figure 3, column 4, lines 10-11) as shown in figures 3-13 having a power supply region (32, column 4, line 1) and a ground region (34, column 4, line 1) that are adjacent and are formed in **a multiplayer circuit board**, wherein, when at least one region of the power supply region (32) and the ground region (34) that are adjacent (column 4, lines 39-40) has a shape that may be considered a track (transmission lines), a terminal element (48, column 4, line 50) having an impedance ( $R$ ) at is substantially equal to a characteristic impedance ( $Z_0$ ) between said regions is connected between the power supply region and the ground region at a terminal portion vicinity of said at least one region (column 5, lines 20-23).

As to claim 16, Lockwood discloses a circuit board device as shown in figures 3-13 wherein the terminal element includes a capacitor (48.2, column 5, line 9).

As to claim 17, Lockwood discloses a circuit board device as shown in figures 6-7 wherein the terminal element includes a resistor (48.3) and a capacitor (48.2) which are series-connected.

As to claim 18, Lockwood discloses a circuit board device as shown in figures 3-13 wherein the region that may be considered a track is a shape having a length that is larger than a width.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lockwood et al. (U. S. Patent 5,898,576).

As to claim 8, Lockwood does not disclose a characteristic impedance  $Z_e$  and the impedance  $Z_r$  of the terminal element satisfy a relationship  $0.1 \leq Z_r / Z_e \leq 10$ .

It would have been obvious to one having ordinary skill in the art at the time the invention was made to a ratio of an impedance ( $Z_r$ ) and a characteristic impedance ( $Z_e$ ) in a small region of 0.01 in order to reduce an electromagnetic noise in a small range of a terminal element effective on a printed circuit board.

7. Claims 1, 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockwood et al. (U. S. Patent 5,898,576) in view of Nakao et al. (U. S. Patent 5,926,377).

As to claim 1, Lockwood discloses a circuit board device (30-figure 3, column 4, lines 10-11) as shown in figures 3-13 having a power supply region (32, column 4, line 1) and a ground region (34, column 4, line 1) that are adjacent, wherein, when at least one region of the power supply region (32) and the ground region (34) that are adjacent (column 4, lines 39-40) has a shape that may be considered a track (transmission lines), a terminal element (48, column 4, line 50) having an impedance ( $R$ ) at is

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substantially equal to a characteristic impedance ( $Z_0$ ) between said regions is connected between the power supply region and the ground region at a terminal portion vicinity of said at least one region (column 5, lines 20-23).

Lockwood does not disclose the power supply region divided into two or more power supply regions by a slit.

Nakao shows a multiplayer circuit board disclosed in figures 1a-1c comprising a power supply region (2), the power supply region being divided into two or more power supply regions by a slit (7; 9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have teaching's Nakao to employ the circuit board device of Lockwood in order to provide an increasing a resonance frequency of a printed circuit board.

As best understood to claim 4, Lockwood discloses a circuit board device as shown in figure 3 wherein the power supply and ground regions (32, 34) that are adjacent are formed in a multiplayer circuit board.

As to claim 5, Lockwood discloses a circuit board device as shown in figures 3-13 wherein the terminal element includes a capacitor (48.2, column 5, line 9).

As to claim 6, Lockwood discloses a circuit board device as shown in figures 6-7 wherein the terminal element includes a resistor (48.3) and a capacitor (48.2) which are series-connected.

As to claim 7, Lockwood discloses a circuit board device as shown in figures 3-13 wherein the region that may be considered a track is a shape having a length that is larger than a width.

As to claim 8, Lockwood and Nakao do not disclose a characteristic impedance  $Z_e$  and the impedance  $Z_r$  of the terminal element satisfy a relationship  $0.1 \leq Z_r / Z_e \leq 10$ .

It would have been obvious to one having ordinary skill in the art at the time the invention was made to a ratio of an impedance ( $Z_r$ ) and a characteristic impedance ( $Z_e$ ) in a small region of 0.01 as taught by Lockwood and Nakao in order to reduce an electromagnetic noise in a small range of a terminal element effective on a printed circuit board.

#### ***Allowable Subject Matter***

9. Claims 9 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers

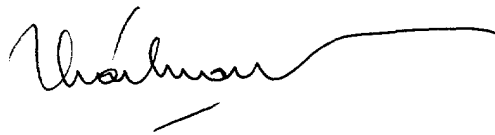
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for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

**TD**

July 11, 2003.

  
Tuan Thai